

# Notice of Allowability

Application No.

10/705,288

Examiner

DANIEL G. MARIAM

Applicant(s)

SILVER ET AL.

Art Unit

2625

## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to a preliminary amt. filed on 11/10/03 & a telephone interv. dated 9/14/05.
2. ☒ The allowed claim(s) is/are 122-150 and 152-161 (will be renumbered as 1-39).
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date 11/10/2003
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413),  
Paper No./Mail Date 9/14/2005.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

**DANIEL MARIAM**  
**PRIMARY EXAMINER**

## EXAMINER'S AMENDMENT AND REASONS FOR ALLOWANCE

### Examiner's Amendment

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Russ Weinzimmer (Registration No. 36,717) on September 14, 2005.

2. The application has been amended as follows:

Amend the specification as follows:

In page 2 of the amended specification dated November 10, 2003 under the heading "Cross Reference to Related Applications": in line 2 after "12/22/2000" insert "which is now US Patent No. 6,658,145 issued on December 2, 2003" - -

under the heading "Cross Reference to Related Application" in line 3 after "12/31/1997" insert "which is now abandoned" - -

under the heading "Cross Reference to Related Application" in lines 3-4 delete "09/979,588" filed 11/26/1997" and replace it with "08/979,588 filed 11/26/1997, which is now abandoned" - -

3. Please Note: While applicants have canceled claims 1-120 of the originally filed claims by the amendment (See page 3 of the preliminary amendment filed November 10, 2003), and have submitted newly added claims 121-160 (See pages 3-7 of the preliminary amendment), the originally filed claims in fact contain claims 1-121.

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Cancel the originally filed claim 121, and renumber the newly added claims **121-160 as 122-161**, amend the newly renumbered claims 122-126, 134, 136-138, 146, and 151 as follows:

Amend the newly renumbered claim 122 as follows:

At line 10, delete the limitation “adapted” and replace it with “configured” - -

Amend the newly renumbered claim 123 as follows:

At line 2, delete the limitation “adapted” and replace it with “configured” - -

Amend the newly renumbered claim 124 as follows:

At line 2, delete the limitation “adapted” and replace it with “configured” - -

Amend the newly renumbered claim 125 as follows:

At line 2, delete the limitation “adapted” and replace it with “configured” - -

Amend the newly renumbered claim 126 as follows:

At line 2, delete the limitation “adapted” and replace it with “configured” - -

Amend the newly renumbered claim 134 as follows:

At line 10, delete the limitation “adapted” and replace it with “configured” - -

At line 12, delete the limitation “adapted” and replace it with “configured” - -

Amend the newly renumbered claim 136 as follows:

At line 2, delete the limitation “adapted” and replace it with “configured” - -

Amend the newly renumbered claim 137 as follows:

At line 2, delete the limitation “adapted” and replace it with “configured” - -

Amend the newly renumbered claim 138 as follows:

At line 2, delete the limitation “adapted” and replace it with “configured” - -

Amend the newly renumbered claim 146 as follows:

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At line 13, after the limitation "image" insert ", and an aggregate coverage value" - -

Cancel the newly renumbered claim 151.

#### **Reasons for Allowance**

4. Newly renumbered claims 122-150 and 152-161 are allowed. The claims will be renumbered as 1-39.

5. The following is an examiner's statement of reasons for allowance: the instant invention discloses refining a starting pose of an object using geometric pattern matching. Upon acquisition of a run-time image of the object having an expected shape and a true pose, the starting pose represents an initial estimate of the true pose, the instant invention provides a stored model pattern that includes a geometric description of the expected shape of the object, and the description includes a plurality of boundary points. Thereafter, the instant invention detects a plurality of image boundary points in the run-time image, and uses these boundary points, the stored model pattern, and the starting pose in a sequence of pose refinements to provide: a refined pose that represents a refined estimate of the true pose of the object in the run-time image, and an aggregate coverage value. These features in combination with all of the other elements of the claims are not disclosed or fairly suggested by any of the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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### Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent Number: 5850469, 5871018, and 6026186.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL G. MARIAM whose telephone number is 571-272-7394. The examiner can normally be reached on M-F (7:00-4:30) FIRST FRIDAY OFF.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, BHAVESH M. MEHTA can be reached on 571-272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
DANIEL G MARIAM  
Primary Examiner  
Art Unit 2625

September 14, 2005